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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/566,218

01/27/2006

Masahiro Yamashita

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EXAMINER

YANCHUK, STEPHEN J

ART UNIT

PAPER NUMBER

1729

MAIL DATE

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04/29/2011

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/566,218	<b>Applicant(s)</b> YAMASHITA ET AL.	
	<b>Examiner</b> STEPHEN YANCHUK	<b>Art Unit</b> 1729	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12, 14, 16 and 17 is/are pending in the application.
- 4a) Of the above claim(s) 16 and 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. All outstanding objections and rejections are withdrawn in light of applicant's RCE filed 7/21/2010
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in prior office action.

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 07/21/2010 has been entered.

### ***Double Patenting***

1. Claims 1-12, 14 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 7,754,844 in view of McGrath (PGPUB 2006/0258836).

'844 claim 1 teaches the use of the identical general formula components as the instant application. '844 fails to teach the water content within the range as well as the conductivity in the dependant claims.

McGrath teaches changing the ratio of polymers in a membrane with sulfonic acid groups to achieve the claimed water content and conductivity. It would have been obvious to use McGrath to modify '844 because McGrath teaches a way to increase the temperature of operation of fuel cells due to higher water absorption of the membrane [5-7].

***Claim Rejections - 35 USC § 112***

1. Claims 1-12, and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear how the water content of a material is within the range of 10%-45% or 70%-120% without it also being capable of existing between 45%-70%. Applicant must select one of the two ranges or the whole range of 10%-120%. The ranges fail to further limit each other. The applicant teaches maximum water content from 10-120% preferably 20-45% and 70-110% [59]. Applicant may pick one of the ranges to be reviewed.
2. Claim 4 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Lambda is not a clearly defined variable in the claim. Further the relationship between the acid group and humidity is indefinite; "relation (sulfonic acid group content)  $\times 6^{-2}$ " is not positively reciting structure claim limitations.

**Claim Rejections - 35 USC § 102**

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- a. (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.
3. Claims 1, 3-12, 14 are rejected under 35 U.S.C. 102(e) as being anticipated by McGrath et al (PGPUB 2006/0258836 with provisional to 60/455596).

Image from provisional '596 showing proof of invention

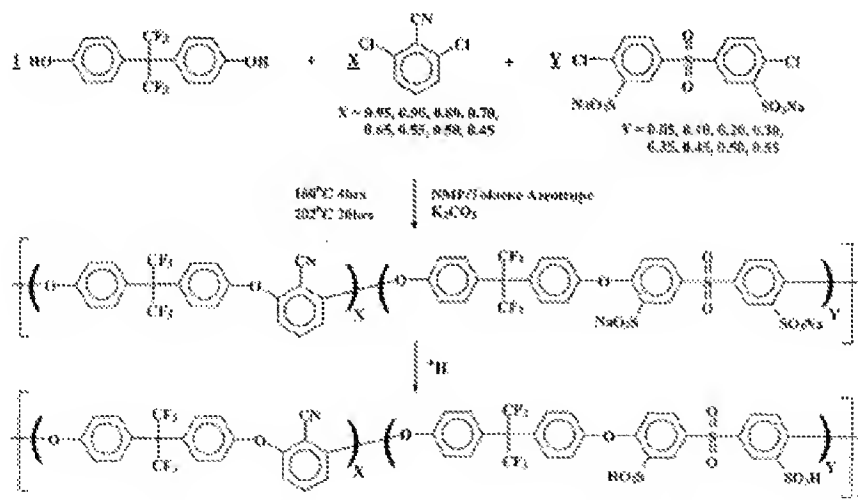


Fig. 3. Synthetic scheme for sulfonated hexafluoro poly(arylene ether nitrile)s

Claim 1, 14: McGrath teaches a Polymer electrolyte membrane (PEM) for a fuel cell [Abstract]. The two claimed general formula units of the instant application are taught by McGrath as shown above in Fig 3 of the provisional application. The glass transition temperature is taught to be 200°C [8]. McGrath teaches that the water uptake % is a tailorable variable of the PEM by changing the proportion of the polymers in the layer wherein the ratio of 55:45 produces a max water uptake of about 60% [Fig 3; 61-68]. The calculation provided by the applicant for calculating weight percent is simply the equation for calculating a percent and is therefore inherently taught by the teaching of the maximum water weight retention for the material layer [Fig 3].

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3-12 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over McGrath et al (PGPUB 2006/0258836 with provisional to 60/455596).

Claim 3-12: The PEM is taught to have an ion exchange capacity between 1.0-3.0meq/g [Fig 6; Table 1-2]. The conductivity is taught to be 0.10 S/cm at 90°C [27]. The prior art teaches the same material as the instant claimed invention; the IEC of the material will change in the same manner as the instantly claimed material. Alternatively, it would have been obvious to have a structure with the water content and conductivity

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of the claimed invention by altering the conditions in which the structure is found. Since the structure itself is not changing, but just responding to the environment from method limitations of heating and such, the prior art obviously overcomes the instant claimed invention.

McGrath teaches the use of sulfonic acid groups wherein the IEC of the group is an inherent property [29, 59-62]. Nafion, sulfonated polystyrene, styrene-butadiene, poly(arylene ether) made with or without post sulfonation polymer modification are used [6-7]. The moisture absorption coefficient under the functional conditions are an inherent property of the material.

The structure of the prior art reads on the structure provided in the instant claim. The functional language provided to characterize the material does not teach a novel material over the prior art since the claimed features are inherent to the material in various conditions. The prior art establishes the structure of the claimed invention and therefore the inherent properties of that structure between the prior art and instant claimed invention are the same, *MPEP 2112*.

**2112 Requirements of Rejection Based on Inherency; Burden of Proof [R-3]**

The express, implicit, and inherent disclosures of a prior art reference may be relied upon in the rejection of claims under 35 U.S.C. 102 or 103. "The inherent teaching of a prior art reference, a question of fact, arises both in the context of anticipation and obviousness." *In re Napier*, 55 F.3d 810, 813, 34 USPQ2d 1762, 1784 (Fed. Cir. 1995) (affirmed a 35 U.S.C. 103 rejection based in part on inherent disclosure in one of the references). See also *In re Grosseil*, 713 F.2d 731, 738, 218 USPQ 768, 776 (Fed. Cir. 1983).

**I. SOMETHING WHICH IS OLD DOES NOT BECOME PATENTABLE UPON THE DISCOVERY OF A NEW PROPERTY**

"[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer." *Atlas Powder Co. v. Iacocca Inc.*, 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). Thus, the claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977). *In re Crish*, 383 F.3d 1253, 1258, 73 USPQ2d 1364, 1368 (Fed. Cir. 2004), the court held that the claimed promoter sequence obtained by sequencing a prior art plasmid that was not previously sequenced was anticipated by the prior art plasmid which necessarily possessed the same DNA sequence as the claimed oligonucleotides. The court stated that "just as the discovery of properties of a known material does not make it novel, the identification and characterization of a prior art material also does not make it novel." *Id.* See also MPEP § 2112.01 with regard to inherency and product-by-process claims and MPEP § 2141.02 with regard to inherency and rejections under 35 U.S.C. 103.

**II. INHERENT FEATURE NEED NOT BE RECOGNIZED AT THE TIME OF THE INVENTION**

There is no requirement that a person of ordinary skill in the art would have recognized the inherent disclosure of the time of invention, but only that the subject matter is in fact inherent in the prior art reference. *Schering Corp. v. Geneva Pharms., Inc.*, 339 F.3d 1373, 1377, 67 USPQ2d 1684, 1686 (Fed. Cir. 2003) (rejecting the contention that inherent anticipation requires recognition by a person of ordinary skill in the art before the critical date and allowing expert testimony with respect to post-critical date clinical trials to show inherency); see also *Toro Co. v. Deere & Co.*, 355 F.3d 1313, 1320, 69 USPQ2d 1584, 1599 (Fed. Cir. 2004) ("[T]he fact that a characteristic is a necessary feature or result of a prior art embodiment (that is itself sufficiently described and embodied) is enough for inherent anticipation, even if that fact was unknown at the time of the prior invention."); *Abbott Labs v. Geneva Pharms., Inc.*, 182 F.3d 1315, 1319, 51 USPQ2d 1307, 1310 (Fed. Cir. 1999) ("If a product that is offered for sale inherently possesses each of the limitations of the claims, then the invention is on sale, whether or not the parties to the transaction recognize that the product possesses the claimed characteristics."); *Atlas Powder Co. v. Iacocca, Inc.*, 190 F.3d 1342, 1348-49 (Fed. Cir. 1999) ("Because 'sufficient venturi' was inherent in the prior art, it is irrelevant that the prior art did not recognize the key aspect of [the] invention. . . . An inherent structure, composition, or function is not necessarily known."); *SmithKline Beecham Corp. v. Apotex Corp.*, 403 F.3d 1331, 1343-44, 74 USPQ2d 1398, 1406-67 (Fed. Cir. 2005) (holding that a prior art patent to an anhydrous form of a compound "inherently" anticipated the claimed hemihydrate form of the compound because practicing the process in the prior art to manufacture the anhydrous compound "inherently results in at least trace amounts of" the claimed hemihydrate even if the prior art did not disclose or recognize the hemihydrate).

**III. A REJECTION UNDER 35 U.S.C. 102/103 CAN BE MADE WHEN THE PRIOR ART PRODUCT SEEMS TO BE IDENTICAL EXCEPT THAT THE PRIOR ART IS SILENT AS TO AN INHERENT CHARACTERISTIC**

Where applicant claims a composition in terms of a function, property or characteristic and the composition of the prior art is the same as that of the claim but the function is not explicitly disclosed by the reference, the examiner may make a rejection under both 35 U.S.C. 102 and 103, expressed as a 102/ 103 rejection. "There is nothing inconsistent in concurrent rejections for obviousness under 35 U.S.C. 103 and for anticipation under 35 U.S.C. 102." *In re Best*, 562 F.2d 1252, 1255 n.4, 195 USPQ 430, 433 n.4 (CCPA 1977). This same rationale should also apply to product, apparatus, and process claims claimed in terms of function, property or characteristic. Therefore, a 35 U.S.C. 102/ 103 rejection is appropriate for these types of claims as well as for composition claims.

5. Claims 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over

McGrath as applies to claim 1 and further in view of Barton et al (USPAT 6057054).

McGrath teaches a PEM of a fuel cell but fails to teach a seal.

Barton teaches a fuel cell with a PEM, electrodes, and a seal (125) [Fig 3]. It would have been obvious to incorporate Barton to modify the prior art because Barton teaches a seal that restricts internal fluid from migrating outward through the side edge [Abstract' Fig 3].



### ***Response to Arguments***

6. Applicant's arguments with respect to claims 1-12, 14 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEPHEN YANCHUK whose telephone number is (571)270-7343. The examiner can normally be reached on Monday through Thursday 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ula Ruddock can be reached on 571-277-1481. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/STEPHEN YANCHUK/  
Examiner, Art Unit 1729

/Ula C Ruddock/  
Supervisory Patent Examiner, Art Unit 1729